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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/554,710	10/27/2005	Takahiro Yamasaki	DK-US040384	9233

22919 7590 08/29/2006

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EXAMINER
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VERDIER, CHRISTOPHER M

ART UNIT	PAPER NUMBER
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3745

DATE MAILED: 08/29/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/554,710

Applicant(s)

YAMASAKI, TAKAHIRO

Examiner

Christopher Verdier

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 27 October 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 October 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☒ Some \* c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>10-27-05</u> . | 6) <input type="checkbox"/> Other: _____  |

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Receipt and entry of Applicant's Preliminary Amendment dated October 27, 2005 is acknowledged. The Replacement Sheets of Drawings filed October 27, 2005 for figures 7-9 are accepted by the examiner.

### ***Priority***

Acknowledgment is made of applicant's claim for foreign priority based on an application filed in Japan on April 21, 2004. It is noted, however, that applicant has not filed a certified copy of the Japanese application as required by 35 U.S.C. 119(b).

### ***Drawings***

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: "1". Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Specification***

The disclosure is objected to because of the following informalities: Appropriate correction is required.

On page 1, line 1, "SPECIFICATION" is superfluous and should be deleted.

On page 1, line 11, "ends" should be changed to -- end --.

On page 2, line 13, "blow" should be changed to -- blown --.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In claim 1, last line, "therein" is indefinite in that it is unclear as to which element this refers to (for example, the recessed part, the air suction side end parts, the side of the vanes, the vanes, or the hub). Claim 2 is unclear in that line 4 recites "a length" in a shaft core direction, which is used interchangeably with "a width" in line 5, leading to confusion because the length and width of an element are two entirely different dimensions. In claim 7, last line, "therein" is indefinite for the same reason with regard to claim 1, last line above.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-10, as far as they are definite and understood, are rejected under 35 U.S.C.

103(a) as being unpatentable over Japanese Patent 4-143,525 in view of Japanese Patent 53-89,607. Japanese Patent 4-143,525 (figures 1-2) discloses a multi-vane centrifugal fan substantially as claimed, including a fan housing 1/2/4 with an unnumbered air suction port and a bell mouth 4e with an unnumbered recessed part of prescribed depth provided around a circumference of the air suction port, an impeller 5 rotatably housed in the fan housing and including an unnumbered hub rotatably driven around an unnumbered shaft core connected to 6, and plural vanes 5a fixed to the hub and arranged with a prescribed spacing in a circumferential direction of the hub, with the recessed part having unnumbered air suction port end parts positioned on the side of the vanes opposite the hub and rotatably inserted into the recessed part of the bell mouth. Each vane extends in the shaft core direction with a width that decreases with a prescribed variation pattern from an air inlet side to an air outlet side. The prescribed variation pattern includes a pattern that changes a shape of the air suction port side end part to a curved shape from the air inlet side to the air outlet side. The prescribed variation pattern includes a pattern that changes a shape of the air suction port side end part to an arcuate shape having a prescribed curvature from the air inlet side to the air outlet side.

However, Japanese Patent 4-143,525 (figures 1-2) does not disclose an annular member for reinforcement provided on a side of the vanes opposite the hub such that there is no shroud

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(claim 1), does not disclose that the prescribed variation pattern includes a linear variation pattern in which a shape of the air suction port side end part linearly changes from the air inlet side to the air outlet side (claim 5), does not disclose that the annular member is disposed at the air outlet side of the vanes proximate the air suction port side (claims 6 and 8-10), and does not disclose an annular member for reinforcement on an outer side in a radial direction and integrated with plural end parts on the side of the vanes opposite the hub such that the prescribed spacing is fully open in a shaft core direction and in a direction of a side of the vanes opposite the hub (claim 7).

Japanese Patent 53-89,607 (figure 2) shows a centrifugal fan having an impeller 1 with an annular member 6 for reinforcement provided on a side of vanes 2 opposite a hub such that there is no shroud on the impeller, with the impeller vanes projecting into an inlet of the fan, with a prescribed variation pattern that includes a linear variation pattern in which a shape of an air suction port side end part of the blades linearly changes from an air inlet side to an air outlet side, with the annular member being disposed at the air outlet side of the vanes proximate the air suction port side, with the annular member for reinforcement located on an outer side in a radial direction and integrated with plural end parts on the side of the vanes opposite the hub such that a prescribed spacing is fully open in a shaft core direction and in a direction of a side of the vanes opposite the hub. The arrangement is provided for the purpose of reinforcing the impeller while avoiding interference with the airflow at the inlet of the fan.

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It would have been obvious at the time the invention was made to a person having ordinary skill in the art to form the centrifugal fan of Japanese Patent 4-143,525 such that it includes an annular member for reinforcement provided on a side of the vanes opposite the hub such that there is no shroud, with the prescribed variation pattern including a linear variation pattern in which a shape of the air suction port side end part linearly changes from the air inlet side to the air outlet side, with the annular member disposed at the air outlet side of the vanes proximate the air suction port side, and such that the annular member is located on an outer side in a radial direction and integrated with plural end parts on the side of the vanes opposite the hub such that the prescribed spacing is fully open in a shaft core direction and in a direction of a side of the vanes opposite the hub, as taught by Japanese Patent 53-89,607, for the purpose of reinforcing the impeller while avoiding interference with the airflow at the inlet of the fan.

#### *Prior Art*

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

McConnell is cited to show a blower with an impeller having an end seal 50 located at an inlet.

Botros, Wolbrink, Bubb, and Kim'174 are cited to show centrifugal impellers with annular reinforcing members.

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Garnett is cited to show a blower with vane ends that project into an inlet.

Kim '120 and '538 is cited to show an impeller with curved vane ends.

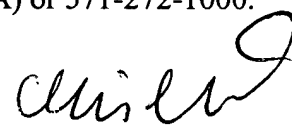
Japanese Patent 7-27,097 was included with the prior art of this application yet not listed on form PTO-1449. This reference shows a centrifugal fan with a bell mouth.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher Verdier whose telephone number is (571) 272-4824. The examiner can normally be reached on Monday-Friday from 10:00-6:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward K. Look can be reached on (571) 272-4820. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

C.V.  
August 23, 2006

  
Christopher Verdier  
Primary Examiner  
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